

**IMPLEMENTATION PROCEDURES (IP)
CHANGE NOTICE**

SECTION 5 - INSTALLING SUN SOFTWARE PACKAGES

CH	DATE	POC	SECT	REMARKS
1	1/17/97	C.Burritt	5.3.1	Statement added to not use volume Manager to Upgrade GCCS 2.1 systems to GCCS 2.2

SECTION 5. INSTALLING SUN SOFTWARE PACKAGES

5.1 Installing Answerbook

5.1.1 AnswerBook Description

AnswerBook on-line documentation software gives users access to manuals right on their screen. Page for page, just like the printed books, the AnswerBook interface is familiar, and it offers the added advantages of a full-text searching capability, hypertext navigation, and electronic bookmarking.

Each AnswerBook product, or set of on-line manuals, is bundled as a package (a unit of software) on a CD-ROM disk.

5.1.2 Overview of AnswerBook Installation

To install an AnswerBook package, you need a system with SPARC architecture, a CD-ROM drive available somewhere on the network, and sufficient disk space (1 to more than 50 Mbytes, depending on the AnswerBook package and the installation option you choose).

The basic installation steps are as follows:

- a. Run **pkgadd** to install one or more AnswerBook packages from the CD-ROM disk.
- b. You will be asked to choose the installation option, **nil** or **heavy**, for each package you install. A choice of **nil** takes less disk space, but choosing **heavy** results in better AnswerBook performance.
- c. Choose a parent directory for the AnswerBook package and check available disk space there. Usually /opt is used.
- d. If users will be sharing AnswerBooks on a network, finish up with an administrative procedure.

5.1.3 AnswerBook Installation

Perform the following steps:

1. Place the AnswerBook CD-ROM into the drive.
2. Log in as root and execute the following:

```
pkgadd -d /cdrom/cdrom0 <Return>
```
3. Specify one or all AnswerBook packages you want to install. Default is "all".

Copyright information

The installation options are as follows:

Option: Description:

-
1. nil: less than X Megabytes disk space required
 [slowest performance].
 2. heavy: XX Megabytes disk space required
 [best performance].

Enter the number of an installation option from the list
above (1 or 2).

Make sure to choose a parent directory on a file system
big enough to accommodate all the files to be moved for
the INSTALL OPTION you selected

Enter the number of an installation option from the list
above (1 or 2).

4. Type **1** for nil, **2** for heavy and **<Return>**. Heavy recommended
 if disk space allows.

Specify the parent of the AnswerBook home directory:
/opt (for example)

5. Type the name of the parent directory for the package. The
 default is */opt*.

/opt <Return>

Do you want to continue with the installation of this
package? [y, n, ?]

6. Type **[y]** followed by **<Return>** to complete the installation.

The installation proceeds, listing AnswerBook components as they are installed, until you see this message.

Installation was successful.

[Information varies ...]

Select package(s) you wish to process (or 'all' to process all packages). (default: all) [?, ??, q]:

7. Type **[q]** to quit the installation.

5.2 Installing SPARCprinter E

5.2.1 Hardware Installation

- a. In accordance with the *Sun SPARCprinter E Hardware Installation and User's Guide* unpack and setup your printer. You should have at least 6 inches clearance on all sides and 12 inches on the top. It is best to use a Network setup or serial connection for best results.
- b. Once you have setup your printer and powered it up, you can perform a test print using the menu on the printer. Use the following steps to print a test page:
 1. Select **MENUS**.
 2. Select **TESTS MENU**.
 3. Select **Print Test Page**.
 4. Select **Single**.

NOTE: The message: **Printing Test Page** is displayed.

- c. You can configure your printer to have a **NETWORK setup** or a **shared printer from a network server**.
- d. To setup your printer with a NETWORK setup perform the following on your printer:
 1. Connect your network cable to the bottom connector on the printer system board (the factory default), the

functions for that card have a prefix of Net1.

2. Select **MENUS**.
3. Select the **top button next to the word MENUS**. The list of the menu names is displayed.
4. Select the menu **NETWORK MENU**.
5. **Network Card**. This menu item has four choices:
 - **View Card Status** - Disabled/Enabled
 - **End-of-Job Time-out** 1 to 255 seconds - This allows you to set the amount of time (in seconds) that the printer waits for data from a file or print server. Default setting is 90 seconds.
 - **View Network address** - 12 digit hexadecimal address - This displays the Universally Administered Address (UAA) and Locally Administered Address (LAA). Although you can view these numbers, you cannot change them.
 - **Connect Message** - On/Off - This allows you to prevent the **No Network Connection** message from being displayed.
6. **Printer Setup Page**. This item prints an informational page about your network connection and active protocols.
7. **LexLink Protocol**. This menu item has two choices:
 - **Activate Protocol** - Yes/No - This item activates the protocol used with OS/2, AIX, and Windows NT.
 - **View Nickname**
8. **NetWare Protocol**. This menu item has three choices:
 - **Activate Protocol** - Yes/No
 - **View Login Name**
 - **View NetWare Mode**
9. **AppleTalk Protocol**. This menu item has four choices:
 - **Activate Protocol** - Yes/No
 - **Set Preferred Zone**
 - **View AppleTalk name**
 - **View Node Address**
10. **IP Protocol**. This menu item has five choices:

- Activate Protocol - Yes/No. This item activates the IP Protocol used with TCP/IP.
 - Enable BOOTP - Yes/No.
 - Set IP Address (Default: 000.000.000.000).
 - Set IP Netmask (Default: 255.255.255.000)
 - Set IP Gateway.
- e. Once you have completed the above you now can complete your NETWORK setup.
1. Select **MENUS**.
 2. Select **Setup Menu**.
 3. Select **Network Setup**.
 4. **Net1 PCL SmartSwitch**. Setting PCL SmartSwitch On (the factory default) allows the printer to examine the data on the specified network interface connection and choose PCL 5. Enhanced emulation if the data indicates that is the printer language. If both PCL SmartSwitch and PS SmartSwitch are set Off, the printer uses the language specified in the Printer Language menu as the default. If only one language is set Off, the printer uses the language set On as the default.
 5. **Net1 PS SmartSwitch**. Setting PS SmartSwitch On allows the printer to examine the data on the network interface connection and choose PostScript Level 2 emulation if the data indicates that is the printer language. The factory default is On. If both PCL SmartSwitch and PS SmartSwitch are set Off, the printer uses the language specified in the Printer Language menu as the default. If only one language is set Off, the printer uses the language set On as the default.
 6. **Net1 NPA Mode**. NPA is a mode of bidirectional communication that follows the NPA Specification and requires the printer to perform special processing of the data. The NPA Mode menu item under Network Setup only applies to the specified network interface connection. If NPA Mode is set Off, the printer does not perform the NPA processing. If NPA Mode is set to Auto (the factory default), the printer examines the data to determine the format and then processes it in either format. Changing the NPA Mode setting automatically resets the printer.
- f. To setup your printer with a Serial setup perform the following on your printer:

1. Select **MENUS**.
2. Select **Setup Menu**.
3. Select **Serial Setup**.
4. **PCL SmartSwitch** - Setting PCL SmartSwitch On (the factory default) allows the printer to examine the data on the serial interface connection and choose PCL 5 Enhanced emulation if the data indicates that is the printer language. If both PCL SmartSwitch and PS SmartSwitch are set Off, the printer uses the language specified in the Printer Language menu as the default. If only one language is set Off, the printer uses the language set On as the default.
5. **PS SmartSwitch** - Setting PS SmartSwitch On (the factory default) allows the printer to examine the data on the serial interface connection and choose PostScript Level 2 emulation if the data indicates that is the printer language. If both PCL SmartSwitch and PS SmartSwitch are set Off, the printer uses the language specified in the Printer Language menu as the default. If only one language is set Off, the printer uses the language set On as the default.
6. **NPA Mode** - NPA is a mode of bidirectional communication that follows the NPA Specification and requires the printer to perform specila processing of the data. The NPA Mode menu item under Serial Setup only applies to the serial interface connection. If NPA Mode is set On, the data received must be in NPA format. If not, it is rejected as bad data. If NPA Mode is set Off, the printer does not perform the NPA processing. If NPA Mode is set to Auto (the factory default), the printer examines the data to determine the format and then processes it in either format. Changing the NPA Mode setting automatically resets the printer.
7. **RS-232/RS-422** - Choose the serial communcation configuration for your printer. If RS-422 is chosen, Serial Protocol is automatically set to XON/XOFF. The factory default setting is 232.
8. **Serial Protocol** - If you use a serial interface, you can choose one of the following protocols:
 - DTR
 - DTR/DSR
 - XON/XOFF

The factory default setting is DTR, unless you choose RS-422 from the RS-232/RS-422 menu. If you choose RS-422 as your serial communication configuration, XON/XOFF is automatically set as the serial protocol. It appears as the only value in the Serial Protocol menu.

9. **Robust XON**

- On
- Off

In serial communication, the printer sends an XON command to its host to declare that it is ready to print. If the host is not ready to print, the printer sends an XOFF command telling the host to hold the data. Although it is very unusual, some systems may lose the XON command. If you experience this problem, use the Robust XON feature. With XON set to ON, the printer sends out an XON command every second until it sends an XOFF to the host. The default setting is Off.

10. **Baud** - If you use a serial interface, you can choose the rate at which data is being sent to or from your computer. The factory default setting is 9600.
11. **Data Bits** - If you use a serial interface, you can choose the number of data bits sent in each transmission frame. The factory default setting is 8.
12. **Parity** - If you use a serial interface, you can change the Parity setting. The factory default setting is None.
13. **Honor DSR** - The Honor DSR setting determines whether the printer uses its data set ready (DSR) signal. DSR is one of the handshaking signals for most serial interface cables. The serial interface uses DSR to distinguish data sent by the computer from data created by electrical noise in the serial cable. This electrical noise can cause stray characters to print. Set Honor DSR On to prevent any stray characters from printing. The factory default setting is Off.

5.2.2 **Software Installation**

- a. In accordance with the *Sun SPARCprinter E Software Installation and User's Guide* we will now begin the software load of your Sun SPARCprinter E.
- b. To install the SPARC Printer E software, you will:
 1. Mount the CD-ROM.
 2. Install the SPARCprinter E software.

3. Add the printer (to set up the printer queue).
4. Export the SPARCprinter E software for other users on the network.

Note: Do not use the *pkgadd* utility to install the software. The Installer software does more than install the package.

5.2.2.1 Mounting the CD-ROM on Solaris 2.x Systems

- a. If your machine is running Solaris 2.x (SunOS 5.3 or above) and the Volume Manager is running follow the steps below to mount the software:

1. To find out if the Volume Manager is running, type the following command. If you see a response like the one shown, the Volume Manager is running on your system:

```
# /usr/bin/ps -ef | grep vold  
root 163      1 80   Nov 28 ?           0:16 /usr/sbin/vold
```

2. If the Volume Manager is not running on your system, start the Volume Manager by typing the following command as root:

```
# /etc/init.d/volmgt start
```

- b. To mount the software on Solaris 2.x systems running the Volume Manager:

1. Put the CD-ROM into the SunCD drive slot.
2. As root, change to the software directory. In Solaris 2.x, the CD-ROM is automatically mounted in a directory called */cdrom/unnamed_cdrom*.

```
# /cd/cdrom/unnamed_cdrom
```

You are now ready to install the SPARCprinter E software.

5.2.2.2 Loading SPARCprinter E Software

Perform the following steps:

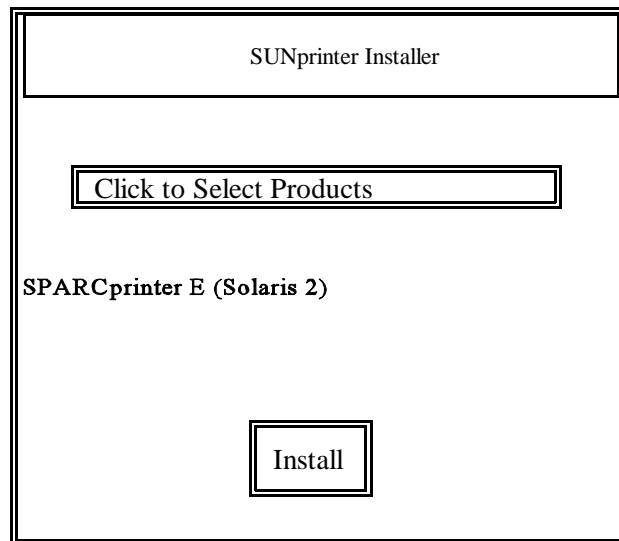
1. As root, type `./installer`.

```
#./installer
```

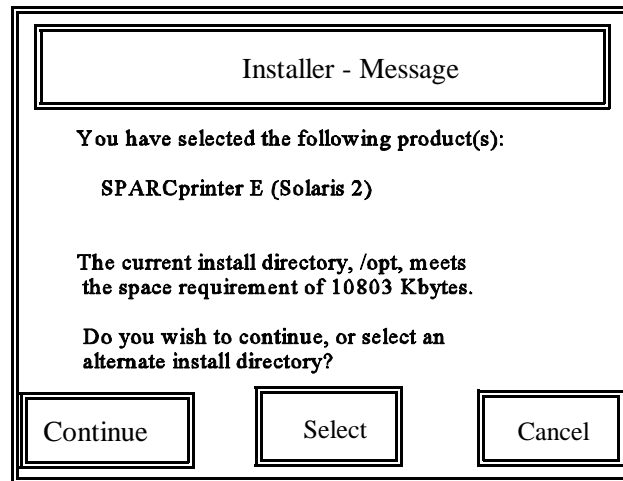
This command starts up the GUI version of the Installer. To start the TTY version, add the `[-t]` option:

```
# ./installer -t
```

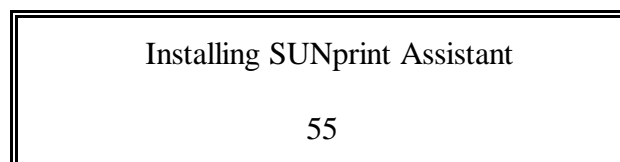
2. The first thing you see when the Installer starts is a copyright window, followed by the SUNprint Installer window shown below:



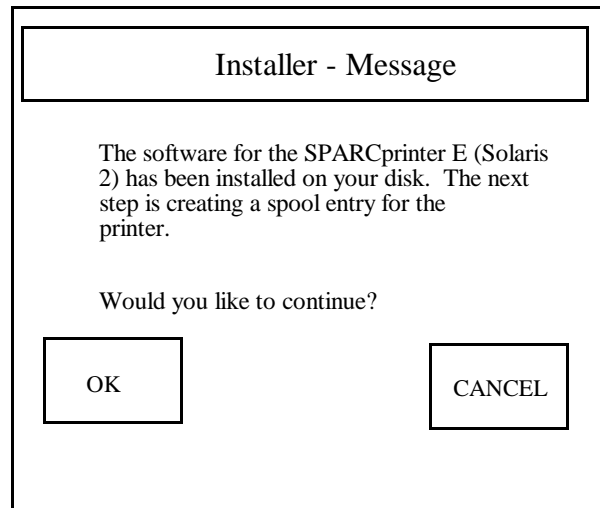
3. Highlight the SPARCprinter E product and click on Install to copy the software from the CD-ROM on to your system.



4. Highlight the SPARCprinter E product from the Select Products menu and click on the Install button.
5. Choose one of the buttons presented in the Installer -Message window. Your choices include:
 - **Continue** - If the information presented in the window is accurate and you wish to proceed with the installation, click on Continue and proceed to the next step
 - **Select** - If you want to specify an alternate installation directory, click on Select to bring up the Installer - Disk Space window (Not shown) and proceed to the next step after completion of setting up your alternate installation directory.
 - **Cancel** - Click on Cancel to dismiss the confirmation message window without installing the software.
6. After your directory choice is confirmed, you will see the following Installer Progress (%) window. This window reports how much of the software has been copied from the CD-ROM to the specified installation directory.



7. When the software installation completes, you will see a confirmation window asking you if you wish to continue with the printer installation.



8. Choose one of the buttons:
 - OK - Click on OK to bring up the Printer Installation Tool Window.
 - Cancel - Click on Cancel if you do not wish to continue with the printer installation.

NOTE: When you choose OK from the Installer - Message window, the Printer Installation Tool window will appear.

Printer Installation Tool	
Printer Name:	<input type="text" value="SUNprinter"/>
Location:	<input type="text"/>
Printer Model:	<input type="text" value="SPARCprinter E"/>
<input type="checkbox"/> Use as default printer	
Printer Queue:	<input type="radio"/> Local <input type="radio"/> Remote

Device Type:	<input type="text" value="ethernet (network)"/>
Assign IP:	<input type="text" value="Pre-assigned"/>
Printer Host Name:	<input type="text"/>

Printer Configuration
<input type="button" value="Install Printer"/> <input type="button" value="Remove Printers"/> <input type="button" value="Exit Installation"/>

9. Use the Printer Installation Tool to install your SPARCprinter E so that it is available for printing from your workstation.
10. The following describes the required fields:
 - **Printer Name** - Specify your local printer name. The name can contain a combination of letters, digits, or hyphens, but should not start out with a hyphen. The name should not exceed 14 characters in length.
 - **Location** - Type in a description of where your printer is physically located. Optional field
 - **Printer Model** - Specify the printer model (SPARCprinter E) for your printer.
 - **Use as default printer** - High the box if you wish to assign this printer as your default.

- **Print Queue** - Choose between a local or remote installation:
- **Local or Remote** - If you install a printer as *local*, the print queue for that printer will be maintained on your workstation, and any preprocessing (such as adding a banner page) will occur there as well. Install a printer as *local* the first time it is installed on a network.
If you install a printer as *remote*, a reference is set up from your machine to the workstation that holds the print queue for the printer.
- **Device Type** - Indicate the type of connection your printer uses to receive data: ethernet, or parallel, or serial. Ethernet is the default, indicating that your printer is connected directly to a network with an Ethernet cable. Parallel and serial options indicate that you are using a parallel or serial cable to connect the printer directly to your workstation.
- **Assign IP (Local Only, Network Device)** - An IP address is a unique number that identifies each host in a network. Indicate if you which to specify the IP address for you printer using the bootstrap protocol (BOOTP) or using a pre-assigned IP address:

Assign an IP address using PRE-assigned when the IP address is either set up through the printer's front panel or the IP address is assigned by a previously configured BOOTP server on the subnet.

Assign the IP address using BOOTP Protocol by setting up a BOOTP server (on the software server where you are running the `install_printer` program) for your SPARCprinter E. In this case, when SPARCprinter E is booted up, your printer will get its IP address from the BOOTP server.
- **Printer Host Name (Local Only, Network Device)** - If the IP address has been pre-assigned, specify your SPARCprinter E host name or the IP address. (The host name is the name matching the IP address of the printer, not the name of a workstation.). If you are assigning the IP address with BOOTP, specify your SPARCprinter E host name. Do not enter an IP address in this case.
- **Hardware Address (Local and BOOTP Protocol Only, Network Device)** - Indicate the hardware of your printer. Specifying this unique printer address allows

the BOOTP server to talk to your printer over the network.

- **Subnet Mask** (Local and BOOTP Protocol Only, Network Device) - Enter the network printer subnet mask. The subnet mask is a number used to split Internet addresses into the network (Internet) and host parts. This information is needed in networks that use subnetting. If you are not using subnetting, leave this field blank.
- **Gateway** (Local and BOOTP Protocol Only, Network Device) - Enter the gateway name or IP address. A gateway refers to the address the printer uses to communicate with devices that are not on the same network. Filling in the Gateway field is optional if the printer and your workstation are on the same subnet.
- **Device Port** (Local Only, Parallel or Serial Device) - Indicate the device port on your workstation that you using to connect your printer. If you are not sure which device port to use, check with your system administrator or system documentation.
- **Baud Rate** (Local Only, Serial Device) - Choose the rate at which data is being sent to and from your computer. The default setting is 9600. In most cases your Sun workstation can handle a baud rate up to 38400.

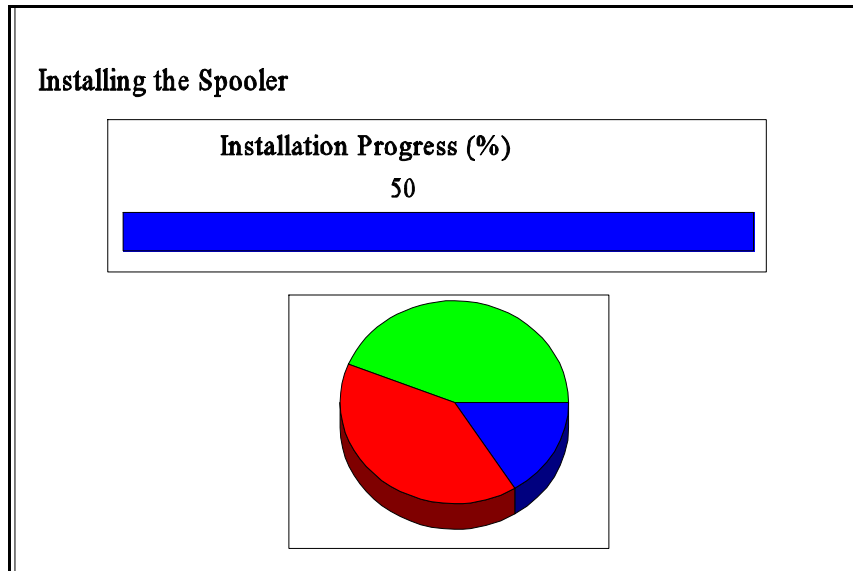
NOTE: If you change the Baud Rate setting, you must also change the baud rate setting at your printer's front panel to the equivalent baud rate

- **Remote Machine** (Remote Only) - Specify the name of the remote machine that contains the print queue. If you do not know this information you can use the SUNprint Assistant.
- **Remote Printer Name** (Remote Only) - Specify the printer name used by the remote machine that contains the print queue. If you do not know this information you can use the SUNprint Assistant.
- **Remote Machine OS** (Remote Only) - Specify if the Remote Machine is running Solaris 1.x or 2.x.
- **Printer Configuration** - Select this button to describe the hardware options and set default parameters for the SPARCprinter E you are about to install. It will bring

up another window called Options Installed (Not shown).

- **Install Printer** - Select this button to start the printer installation. If there are fields in the window that you still need to fill in, this window will remain unaltered. Before you install the software, check your printer configuration to ensure its accuracy.
- **Remove Printers** - Select this button if you wish to remove printers.
- **Exit Installation** - Select this button to exit the installation.

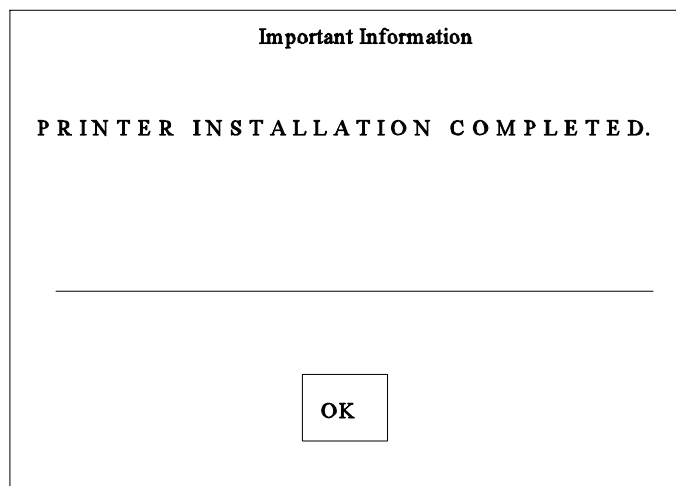
11. After you select Install Printer from the Printer Installation Tool window, you will see a few quick informational messages and then as Installation Progress (%) window.



12. During the installation process, you may see some error or warning messages. For instance, if you choose to install another printer with the same name as an earlier, you will see the following message:

**The printer name 'SPRNE' is already in use.
Please choose another name.**

13. If your installation completes successfully, you will see the following message.



14. At this point you have successfully installed one printer and can proceed to install multiple printers using the instructions in this section.
15. To quit the Printer Installation Tool Window, click on Exit Installation.

5.2.2.3 Exporting From a Solaris 2.x System

Perform the following steps:

1. If your SPARCprinter E software server (*forest*) is running Solaris 2.x (SunOS 5.3 and above), follow these steps to give remote workstations access to the software.
2. As root, ensure the SPARCprinter E software directory is available for remote access.

```
forest# share
```

3. If the *share* command returns a line as the following that begins with */opt/SUNprint* (the default SPARCprinter E software directory), the directory is available and you should proceed to the next step:

```
/opt/SUNprinter ro "SUNprint dir"
```

4. If the *share* command does not return a line beginning with */opt/SUNprint*, type the following command:

```
forest# share -F nfs -o ro -d /opt/SUNprint
```

5. This command will result in the creation of a file called *sharetab* in the */etc/dfs* directory. Since *sharetab* is overwritten each time you reboot your machine, for permanent sharing of the software edit the */etc/dfs/dfstab* file and add the following line:

```
share -F nfs -o ro -d /opt/SUNprint
```

6. Ensure that one NFS daemon (*nfsd*) with at least eight thread is running on the software server. To do this, use the *ps* command.

```
forest# ps -ef | grep nfsd
```

7. If the *ps* command returns the following line, the NFS daemon (*nfsd*) is running. The number at the end indicates the number of threads.

```
root 228 1 14 09:34:01? 0:00 /usr/lib/nfs/nfsd -a 8
```

8. Ensure that the mount daemon (*mountd*) is running on the SPARCprinter E software server.

```
forest# ps -ef | grep mountd
```

9. If the *ps* command returns the following line, the mount daemon (*mountd*) is running.

```
root 273 1 42 09:45:23? 0:00 /usr/lib/nfs/mountd
```

10. If only the *nfsd* or the *mountd* is running, you need to run the following script to stop the currently running daemon:

```
forest# /etc/init.d/nfs.server stop
```

11. To restart both the *nfsd* and the *mountd* daemons, invoke the following script:

```
forest# /etc/init.d/nfs.server start
```

12. Verify that an automount daemon is running as follows:

```
forest# ps -ef | grep automount
```

13. To handle automount requests from remote workstations, the software server must have an automount daemon running. You should see the following message:

```
root 273 1 42 09:45:23 ? 0:00 /usr/lib/autofs/automountd
```

14. If the above message is not returned, use the following command to establish the automount daemon:

```
forest# /etc/init.d/autofs start
```

15. Repeat the `ps` command shown in this step to verify that the automount daemon is running.
16. Now, the SPARCprinter E software is being exported from *forest* and all the required daemons are running.

5.2.2.4 SUNprint Assistant Program Setup

Perform the following steps:

1. If you want to add or remove printers with the SUNprint Assistant (SPA), you need to first run a setup script as root on your machine. Also, you may wish to set SPA environment variables.
2. Before you can add or remove printers using the SPA, you or your system administrator must run the `spa_setup` script as root. You only need to run this script once on your machine. This script is automatically run for you if you use the `install_printer` program to add a local printer on your machine. The `spa_setup` script resides in `<install_dir>/SUNprint/admin`. For example, if you installed your software in the default Solaris 2.x directory `/opt/SUNprint`, issue the following command as root to run the script:

```
# /opt/SUNprint/admin/spa_setup
```

3. Once you have run this script, you can add and remove printers using the SPA application.
- 4 To use the SPA program type *spa* &:

% spa &

5. The SPA application is contained in the `<install_dir>/SUNprint/bin` directory. If you receive the message *spa: Command not found*, you do not have the installation hierarchy in your execution path. The SPA main window has four major sections: menu bar, print source, print destination, and print options.
6. To print using the SUNprint Assistant:
 - Specify a print source
 - Specify a print destination
 - Specify printer options
 - Click on the Print button from the SPA main window

SUNprinter Assistant

File View Preferences

Destination

Options

Print

5.3 Configuring the SUN SPARCstorage Array(s)

5.3.1 Volume Manager Segment Description

The Volume Manager segment automates the installation of the SUN Volume Manager version 2.1.1 software and the configuration of the SPARCstorage arrays. It also provides the sysadmin account with a set of icons to assist in the installation, configuration, and administration of the Volume Manager software and the SPARCstorage arrays.

Table 5-3-1-1. GCCS 2.2 Segment Release Installation

GCCS Core Segments				
* Volume Manager	2.1.1c		2.2 (AP.1)	

* This segment is new for GCCS Version 2.2. It is intended to be used when you are building a "new" system with SPARCstorage arrays. It was not designed to upgrade existing GCCS Version 2.1 systems with Volume Manager 2.0 to Volume Manager 2.1.1.

During the initial installation of the Volume Manager segment the following nine Volume Manager version 2.1.1 software packages are loaded:

SUNWassa	Using the SPARCstorage Array AnswerBook
SUNWdiagp	SPARCstorage Array Online Diagnostics Tool
SUNWssadv	SPARCstorage Array Solaris 5.3 Drivers
SUNWssahd	SPARCstorage Array Solaris 5.3 Header Files
SUNWssamn	SPARCstorage Man Pages
SUNWssaop	SPARCstorage Array Utility
SUNWvmman	SPARCstorage Volume Manager (manual pages)
SUNWvxva	SPARCstorage Volume Manager Visual Administrator
SUNWvxvm	SPARCstorage Volume Manager

In addition the following Solaris patches are loaded during the initial installation of the Volume Manager segment:

101330-07	SUN Diag Patch
101765-02	Disks program supports only 16 drives per controller
103351-02	SPARCstorage Array 1.0, 2.0, 2.1, 2.1.1: Jumbo patch Solaris 2.3
103479-02	Point patch for Solaris 2.3 sd driver

After the Volume Manager segment is loaded the system will have to be reboot. This enables the system to recognize the SPARCstorage array disk drives. After the system comes back up, the installer must log on as sysadmin and execute the "VM Post" icon to complete the installation process. The VM PostInstall process will update the firmware on the SPARCstorage arrays to version 3.9, if necessary, and update the FCode PROM in the FC/S card(s), to version 1.33, if necessary. The installer

will be asked to identify which of the following types of systems they are building:

- Oracle Database Server
- Bosnia Map Server
- Application Server
- Executive Manager Server (AGCCS)

Based on the type of system identified and the hardware configuration of the system the VM PostInstall process will determine how to configure the SPARCstorage array(s) attached to the system. The Volume Manager segment will configure an unlimited number of SPARCstorage arrays. If there are two arrays with the same number of drives and the same size of drives in them the system automatically mirror the two. The tables in Section 5.3.6 identify the configurations supported by this Volume Manager segment.

The following seven icons are provided to the sysadmin account to assist in the administration and configuration of the SPARCstorage arrays. The configuration icons are used to configure the SPARCstorage arrays and are activated/deactivate at the appropriate time. After the initial reboot the VM Post icon will be the only configuration icon activated. Following the execution of VM Post the FORMAT, VXINSTALL and RECOVERY(if the VM Post process determined that the Volume Manager software was previously installed on the system.) icons will be activated. Execution of the VXINSTALL icon will activate the VOLUMES icon. After all the volumes have been built, on the SPARCstorage arrays, all the configuration icons will be deactivated. Following a reboot they will no longer be displayed. The administration icons are always available although the VOLGUI will not work until the VXINSTALL or RECOVERY have been executed.

Administration:

ARRAYS	Properties of Your Arrays
VOLGUI	Volume Manager GUI

Configuration:

FORMAT	Format All SPARC Array
RECOVERY	Volume Manager Configuration Recovery
VM Post	Volume Manager PostInstall
VOLUMES	Create Storage Array Volumes
VXINSTALL	VX Install

5.3.2 Volume Manager Segment Installation Instructions

The Volume Manager segment is loaded by using the Segment Installer. The packages and patches identified above will automatically be installed during the process. You will be notified that you must reboot when the installation is complete to bring the SPARCstorage array drives on line.

Perform the following steps:

1. Launch the Segment Installer and highlight the "Volume Manager" segment. Select "INSTALL" to install the segment. If you restore the xterm created when the Segment Installer was launched you can watch the PostInstall script install the Volume Manager packages and Solaris patches.
2. At the completion of the initial installation an xterm will appear with the following text:

The system must now be halted and rebooted as follows:

```
boot -rp
```

After the reboot you must log in as sysadmin and double click on the "VM Post" icon to execute the Volume Manager PostInstall. This script will update the SPARCstorage Array firmware to 3.9, update the FC card firmware to 1.33, and determine how the Volumes will be constructed on the SPARCstorage arrays.

If the SPARCstorage Array firmware is upgraded you will be notified and told to reboot the system and power cycle the SPARCstorage Array(s).

Enter <Return> when ready

3. Once the Segment Installer has indicated that the segment has been successfully installed exit the Segment Installer and execute the following:

```
init 0 <Return>
```

4. At the "ok" prompt enter the following:

```
boot -rp <Return>
```

5.3.3 Volume Manager Post-Installation Instructions

1. After the system has come back up log in as sysadmin. You should see the seven icons identified in the previous section.
2. To complete the installation double click on the icon labeled

"VM Post" (Volume Manager Post-Install).

Please identify the type of server this platform is

- 1) Oracle Database Server
 - 2) Bosnia Map Server
 - 3) Application Server
 - 4) Executive Manager Server
- Platform Type?

3. Identify the type or server you are building and press **<Return>**.

Example when Oracle Database Server is selected:

You are building a Oracle Database Server

Is this description correct?(y/n)[n]:

4. Enter [y] and press **<Return>**.

Using the information provided in steps three and four the VM Post Install script will determine how the SPARCstorage array(s) will be configured.

If the SPARCstorage array(s) firmware is upgraded you will be notified with the following message:

The SPARCstorage Array firmware has been upgraded
You must shut the system down and power the SPARCstorage arrays off and then on before rebooting the system.

After powering the SPARCstorage arrays on wait until all the drive LCD indicators for all the drives have come on before rebooting the system

Press **<Return>** to exit:

5. Reboot if necessary and continue with section 5.3.4, Volume Manager Configuration Instructions.

5.3.4 Volume Manager Configuration Instructions

You have up to *three options* at this point in the installation:

- a. Volume Manager Configuration Recovery: The SPARCstorage arrays were previously configured and you wish to recover that configuration and the data on the drives. This option is only available if, during the installation, the Volume Manager segment determined that the Volume Manager software was already install on the system or that the Volume Manager software had been deinstalled from the system.
- b. Format All SPARC Array (FORMAT): This option allows you to format all the SPARCstorage array drives before doing the "vxinstall". Formatting is not required and is only recommended if you have a new SPARCstorage array and you wish to ensure that the disk drives are all good.
- c. VX Install: This option initializes all SPARCstorage array disk drives, which must be done before the volumes are created. If you elect not to format the disk drives you should execute this option next.

5.3.4.1 Format Instructions

1. If you wish to format all the disk drives in the SPARCstorage arrays double click on the **FORMAT icon**.

Beginning the formatting of all SPARCstorage Array drives.

A total of <example: 60> SPARCstorage Disk Drives are being Formatted

This window will remain up until the format has completed

Any errors encountered during the formatting process will appear here.

2. The installer should monitor the window to insure that no errors are being encountered. If errors are detected the installer should note the disk drive number <example c2t2d0> and get it replaced.

5.3.4.2 VX Install Instructions

1. If you wish to initialize the SPARCstorage array disk drives double click on the **VXINSTALL icon**.

This function will initialize all SPARCstorage array disk drives as new drives. If the SPARCstorage arrays were previously configured, you will loose what was on them!

Do you wish to continue?(y/n)[y]:

2. Enter [y] and press **<Return>**.

Select Custom Installation when prompted

Initialize all SPARCstorage drives as new drives

If the SPARCstorage array disk drives were previously configured and have not been formatted you will see warning messages similar to the following during the initialization process:

vxvm:vxconfigd: WARNING: Disk c3t2d1s2 names group rootdg, but group ID differs

You should ignore these messages, they will not impact the initialization process

Hit **<Return>** when ready to continue:

3. Press **<Return>** to continue.

Generating list of attached controllers

Volume Manager Installation
Menu: VolumeManager/Install

The Volume Manager names disks on your system using the controller and disk number of the disk, substituting them into the following pattern:

c<controller>t<disk>d<disk>

Some examples would be:

c0t0d0 - first controller, first target, first disk
c1t0d0 - second controller, first target, first disk
c1t1d0 - second controller, second target, first disk

The Volume Manager has detected the following controllers on your system:

c0: io-unit@f,e0200000/sbi@0,0/dma@0,81000/esp@0,80000
c1: io-unit@f,e2200000/sbi@0,0/QLGC,isp@1,10000
c2: io-unit@f,e0200000/sbi@0,0/SUNW,soc@2,0/SUNW,pln@a0000000,00722e39
c3: io-unit@f,e0200000/sbi@0,0/SUNW,soc@3,0/SUNW,pln@a0000000,0072208e

Hit **<Return>** to continue.

4. Press **<Return>** to continue.

Volume Manager Installation
Menu: VolumeManager/Install

You will now be asked if you wish to use Quick Installation or Custom Installation. Custom Installation allows you to select how the Volume Manager will handle the installation of each disk attached to your system.

Quick Installation examines each disk attached to your system and attempts to create volumes to cover all disk partitions that might be used for file systems or for other similar purposes.

If you do not wish to use some disks with the Volume Manager, or if you wish to reinitialize some disks, use the Custom Installation option. Otherwise, we suggest that you use the Quick Installation option.

Hit **<Return>** to continue.

5. Press **<Return>** to continue.

Volume Manager Installation Options
Menu: VolumeManager/Install

- 1 Quick Installation
- 2 Custom Installation
- ? Display help about menu
- ?? Display help about the menuing system
- q Exit from menus

Select an operation to perform: 2

Volume Manager Custom Installation
Menu: VolumeManager/Install/Custom

The c0t3d0 disk is your Boot Disk. This disk has been excluded by the /etc/vx/disks.exclude file.

Hit **<Return>** to continue.

6. Select **2**, Custom Installation, and press **<Return>**.

Volume Manager Custom Installation
Menu: VolumeManager/Install/Custom/c0
Generating list of attached disks on c0....

<excluding c0t0d0>

<excluding c0t1d0>

<excluding c0t2d0>

<excluding c0t3d0>

No disks were found attached to controller c0 !

Hit <Return> to continue.

7. Press <Return> to continue.

NOTE: This screen will only appear if the CDROM is on controller c1.

Volume Manager Custom Installation
Menu: VolumeManager/Install/Custom/c1
Generating list of attached disks on c1....

<excluding c1t6d0>

No disks were found attached to controller c1 !

Hit <Return> to continue.

8. Press <Return> to continue.

Volume Manager Custom Installation
Menu: VolumeManager/Install/Custom/c2
Generating list of attached disks on c2....

The Volume Manager has detected the following disks on controller c2:

c2t0d0 c2t0d1 c2t0d2 c2t0d3 c2t0d4 c2t1d0 c2t1d1 c2t1d2 c2t1d3 c2t1d4

c2t2d0 c2t2d1 c2t2d2 c2t2d3 c2t2d4 c2t3d0 c2t3d1 c2t3d2 c2t3d3 c2t3d4

c2t4d0 c2t4d1 c2t4d2 c2t4d3 c2t4d4 c2t5d0 c2t5d1 c2t5d2 c2t5d3 c2t5d4

Hit <Return> to continue.

9. Press **<Return>** to continue.

Installation options for controller c2

Menu: VolumeManager/Install/Custom/c2

- 1 Install all disks as pre-existing disks. (encapsulate)
- 2 Install all disks as new disks. (discards data on disks!)
- 3 Install one disk at a time.
- 4 Leave these disks alone.

- ? Display help about menu
- ?? Display help about the menuing system
- q Exit from menus

Select an operation to perform:

10. Select **2**, install all disks as new disks, and press **<Return>**.

Volume Manager Custom Installation

Menu: VolumeManager/Install/Custom/c2/Init

Use default disk names for these disks? [y,n,q,?] (default: y)

11. Press **<Return>** to continue.

The c2t0d0 disk will be given disk name disk01

The c2t0d1 disk will be given disk name disk02

The c2t0d2 disk will be given disk name disk03

The c2t0d3 disk will be given disk name disk04

The c2t0d4 disk will be given disk name disk05

.
.
.

The c2t5d1 disk will be given disk name disk27

The c2t5d2 disk will be given disk name disk28

The c2t5d3 disk will be given disk name disk29

The c2t5d4 disk will be given disk name disk30

Hit **<Return>** to continue.

12. Press **<Return>** to continue.

13. Steps 9 through 12 will be repeated for each SPARCstorage Array attached to the system.

Volume Manager Custom Installation
Menu: VolumeManager/Install/Custom

The following is a summary of your choices.

c2t0d0 New Disk
c2t0d1 New Disk
c2t0d2 New Disk
c2t0d3 New Disk
c2t0d4 New Disk
c2t1d0 New Disk
c2t1d1 New Disk
c2t1d2 New Disk
c2t1d3 New Disk
c2t1d4 New Disk

.
.

c3t4d3 New Disk
c3t4d4 New Disk
c3t5d0 New Disk
c3t5d1 New Disk

--More--(94%)

14. Press the **Space bar** to continue.

.
.
.
c3t5d2 New Disk
c3t5d3 New Disk
c3t5d4 New Disk

Is this correct [y,n,q,?] (default: y)

15. Press **<Return>** to continue.

Volume Manager is now reconfiguring (partition phase)...

Volume Manager: Partitioning c2t0d0 as a new disk.

Volume Manager: Partitioning c2t0d1 as a new disk.

Volume Manager: Partitioning c2t0d2 as a new disk.

Volume Manager: Partitioning c2t0d3 as a new disk.

Volume Manager: Partitioning c2t0d4 as a new disk.

.
.
.

Volume Manager: Partitioning c3t5d0 as a new disk.

Volume Manager: Partitioning c3t5d1 as a new disk.

Volume Manager: Partitioning c3t5d2 as a new disk.

Volume Manager: Partitioning c3t5d3 as a new disk.

Volume Manager: Partitioning c3t5d4 as a new disk.

The Volume Manager is now reconfiguring (initialization phase)...

NOTE: If the SPARCstorage array drives were previously configured you will see warning similar to the following. These warning do not impact the initialization process!

vxvm:vxconfigd: WARNING: Disk c3t4d2s2 names group rootdg, but group ID differs
vxvm:vxconfigd: WARNING: Disk c3t4d3s2 names group rootdg, but group ID differs
vxvm:vxconfigd: WARNING: Disk c3t4d4s2 names group rootdg, but group ID differs

The Volume Daemon has been enabled for transactions.

Volume Manager: Adding disk02 (c2t0d1) as a new disk.

Volume Manager: Adding disk03 (c2t0d2) as a new disk.

Volume Manager: Adding disk04 (c2t0d3) as a new disk.

Volume Manager: Adding disk05 (c2t0d4) as a new disk.

Volume Manager: Adding disk06 (c2t1d0) as a new disk.

.
. .
.

Volume Manager: Adding disk46 (c3t3d0) as a new disk.

Volume Manager: Adding disk47 (c3t3d1) as a new disk.

Volume Manager: Adding disk48 (c3t3d2) as a new disk.

Volume Manager: Adding disk49 (c3t3d3) as a new disk.

.
. .
.

Volume Manager: Adding disk60 (c3t5d5) as a new disk

The initialization of the SPARCstorage drives has been completed

To create the volumes double click on the (VOLUMES) icon.

Press <**Return**> when ready:

16. Press <**Return**> to exit VX INSTALL.

5.3.4.3 Recovery Instructions

1. To recover previously configured SPARCstorage arrays double click on the **RECOVERY icon**.

This procedure is to recover previously configured SPARCstorage Arrays

If you do not wish to recover the SPARCstorage Arrays use vxinstall.

Do you wish to continue?(y/n)[n]:

2. Type **y** and press **<Return>** to continue.

Performing steps outlined in SPARCstorage Array User's Guide
to recover the Volume Manager Configuration on previously configured
SPARCstorage Arrays (Page E-38)

Removing: /etc/vx/reconfig.d/state.d/install-db file

Executing: vxiod set 10

Executing: vxconfigd -m disable

Executing: vxdctl init

Executing: vxdctl enable

Updating the /etc/vfstab file to reflect original Volume Configuration

Updating /etc/system file to reflect original Volume Configuration

The Volume Manager Configuration that existed before this segment
was installed has been restored. Reboot the system to continue.

Hit **<Return>** when ready:

5.3.5 Volume Creation Instructions

After the SPARCstorage array drives have been initialized the VOLUME icon (Create Storage Array Volumes) must be executed to create the volumes. The SPARCstorage arrays will be configured based on the type of server you identified this platform as when running the VM Post Install.

1. Double click on the **VOL GUI** (Volume Manager GUI). Then click on the **"rootdg"**.

2. Double click on the **VOLUMES icon** (Create Storage Array Volumes).

Beginning to create Volumes specified, the log file for this process is located in /h/COTS/Volume_Manager/data and is called volmanager_log

You may bring up the "Volume Manager GUI" by selecting the "VOL GUI" icon. This will show you the Volumes as they are being built.

Building volumes on array c2 with mirror on c3

.
.
.

3. No action is required, the "Building volumes . . ." line will appear for each set of arrays that are configured.

The Volume Creation Process is Complete.
Hit <Return> when ready: .

4. Press <Return> to close the window.

5.3.6 SPARCstorage Array Configurations

Table 5.3.6-1. Oracle Database Server with SPARCstorage Arrays

Oracle Database Server with SPARCstorage Arrays and Pedestals			
2.1 GByte Drives		1.05 Gbyte Drives	
Number of Drives	Mount Point	Number of Drives	Mount Point
12	/home10	20	/home10
6	/home1	6	/home1
6	/home20	3	/home20
5	/home30	1	Hot Spare
1	Hot Spare		
The drive allocated for the Hot Spare will be added to /home30 if no mirror is available		The drive allocated for the Hot Spare will be added to /home20 if no mirror is available	

Table 5.3.6-2. Oracle Database Server with SPARCstorage Arrays Only

Oracle Database Server with SPARCstorage Arrays Only			
2.1 GByte Drives		1.05 Gbyte Drives	
Number of Drives	Mount Point	Number of Drives	Mount Point
12	/home10	20	/home10
6	/home1	5	/home1
6	/home20	2	/h/USERS
3	/h/USERS	2	/oracle/smback
2	/oracle/smback	1	Hot Spare
1	Hot Spare		
The drive allocated for the Hot Spare will be added to /h/USERS if no mirror is available		The drive allocated for the Hot Spare will be added to /home1 if no mirror is available	
If /h/USERS is being NFS mounted the /h/USERS on the arrays will be changed to /home25			

Table 5.3.6-3. Application Server

Application Server			
18 Drives		30 Drives	
Number of Drives	Mount Point	Number of Drives	Mount Point
6	/home1	6	/home1
6	/home10	6	/home10
6	/home20	6	/home20
		6	/home30
		6	/home40
If a mirror array is available a drive will be taken from /home20 for the Hot Spare		If a mirror array is available a drive will be taken from /home40 for the Hot Spare	
If less than 200 Mbytes of disk space is available for swap space, the situation with the AGCCS Application servers which have only one non-array drive, the last array drive is partitioned to provide two partitions(slices 0 and 3) for /security1 and /security2 and additional swap space(slice 1). This drive will be taken from /home20, for 18 drive arrays, and /home40, for 30 drive arrays.			

Table 5.3.6-4. AGCCS Executive Manager Server

AGCCS Executive Manager Server			
18 Drives		30 Drives	
Number of Drives	Mount Point	Number of Drives	Mount Point
6	/home1	6	/home1
6	/home10	6	/home10
4	/home20	6	/home20
1	/h/data/global	6	/home30
		4	/home40
		1	/h/data/global
If a mirror array is available a drive will be taken from /home20 for the Hot Spare		If a mirror array is available a drive will be taken from /home40 for the Hot Spare	
The last drive is partitioned to provide the four raw partitions for Sybase(slices 4-7), two partitions(slices 0 and 3) for /security1 and /security2 and additional swap space(slice 1).			

Table 5.3.6-5. Bosnia Map Server

Bosnia Map Server			
18 Drives		30 Drives	
Number of Drives	Mount Point	Number of Drives	Mount Point
14	/home2/mapdata	24	/home2/mapdata
4	/home1	4	/home1
If a mirror array is available a drive will be taken from /home1 for the Hot Spare		If a mirror array is available a drive will be taken from /home1 for the Hot Spare	